

GRIT, DISABILITY, AND LIFE DOMAINS

A THESIS

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MASTER OF ARTS

BY

BRETT CREHAN

BROOKE WILKEN - CHAIRPERSON

BALL STATE UNIVERSITY

MUNCIE, INDIANA

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ABSTRACT**THESIS:** Grit, Disability, and Life Domains**STUDENT:** Brett Crehan**DEGREE:** Master of Arts**COLLEGE:** Teachers College**DATE:** May, 2015**Pages:** 24

Grit is a tendency to work strenuously to overcome challenges in the face of obstacles in order to obtain goals (Duckworth, Peterson, Matthews, & Kelly, 2007). Given the potential for disability to be an obstacle to overcome in order to obtain goals, grit is a particularly important construct to examine in individuals with disabilities. My thesis provides the first examination of grit in such individuals. Additionally, the study is the first to explore whether grit varies across different life domains. I conducted this investigation with an adapted grit scale assessing various life domains. The present study found that grit does not differ significantly across three different life domains, gender, age, and onset of disability, providing support to Duckworth and colleagues assertion that grit is a stable characteristic. This study has important implications for the adjustment and adaptation processes in individuals with disabilities.

Acknowledgements

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Grit, Disability, and Life Domains

Duckworth, Peterson, Matthews, and Kelly (2007) define grit as an individual's ability to persevere and maintain his or her passion in order to obtain a desired goal or outcome. They elaborate further by stating, "Grit entails working strenuously toward challenges, maintaining effort and interest over years despite failure, adversity, and plateaus in progress" (p. 1087-1088). In a series of studies, Duckworth and colleagues (2007) illustrated the validity of grit, demonstrating its applicability to a sample of the general public, military cadets, and undergraduate students too.

While the construct of grit has been studied in the previous samples, to date, there have been no studies of grit in a sample of individuals with disabilities. Yet, given the focus on challenges and adversity in grit, this construct is particularly important to examine in a sample of individuals with disabilities, since individuals with disabilities often face significant challenges and adversity in certain domains of their lives (Chan, Da Silva Cardoso, & Chronister, 2009). According to research in the field of rehabilitation psychology, conceptualizing one's disability as a challenge to be overcome is one route to positive adjustment (Carver, 1998; Wright 1983). Wright states that positive adjustment leads to individuals accepting their chronic illness or disability and redeveloping their self-concept to include an identity as an individual with a disability (Wright, 1983). Thus, an examination of grit among individuals with disabilities has significant implications for understanding subsequent differences in levels of adjustment in this population.

In addition to the lack of any studies on grit in individuals with disabilities, there also have been no studies examining grit across multiple different domains either in individuals with disabilities or in those without disabilities. While Duckworth and colleagues (2007) originally

conceived of grit as a stable personality construct, for both individuals with and without disabilities, grit may actually vary greatly depending on the life domain in which it is measured, and findings in this regard could be invaluable for determining how grit can be shaped by life domain. Therefore, in my thesis, I conducted the first exploratory examination of grit across multiple domains. Additionally, I conducted the first exploratory examination of grit among individuals with disabilities.

Grit in Individuals with Disabilities

While no studies have examined grit as a whole in individuals with disabilities, some studies on individuals with disabilities have examined related constructs that are implicated in grit. For instance, Popivker, Wang, and Boerner (2010) examined various life goals in three life domains (i.e., social, functional, and psychological goals) in individuals with visual impairments, who were aged 40 to 64 years. They reported that individuals' goals were shaped by their visual disability, and that they had some goals that were different than did those without disabilities. Specifically, those with visual impairments had goals in all three domains that were related to their visual disability. These findings could suggest that results regarding grit at a larger level may likewise replicate among individuals with *visual* impairments, though it is still unknown whether they will replicate among individuals with *various* types of disabilities. Since psychological processes may vary greatly among individuals with differing disabilities (e.g., Chan, Da Silva Cardoso, & Chronister, 2009), the extent to which grit may replicate among individuals with all types of disabilities (and not just visual disabilities) remains unclear. Thus, my thesis is also the first to explore whether findings regarding grit replicate in a sample of individuals with various types of disabilities.

Moreover, Popivker and colleagues (2010) reported that the time of onset of the visual disability affected these individuals' goals related to living independently and working. That is, recent onset of the visual impairment resulted in individuals focusing on goals related to accomplishing daily tasks, and individuals who had their visual impairment longer were more focused on pursuing "some of the broader, more long-term life goals, such as career and education [goals]" (Popivker et al., 2010, p. 1133). In their study, Popivker and colleagues classified participants into having an onset of either before or during midlife. Since goals are impacted by the time of onset for individuals in Popivker and colleagues' study, grit may also experience the same impact, such that individuals who have visual disabilities with earlier onsets may report higher levels of grit than those who have disabilities with later onsets as well. Examining grit's relationship to the time of onset of individuals with various disabilities as an ancillary hypothesis in my thesis could help practitioners to better tailor their goal-setting techniques with individuals based on the timing of the onset of their various disabilities. Since Popivker and colleagues defined onset as either occurring prior to or during their current midlife, I adapt this definition to the student population that I examined in the present study. I grouped participants into either having onset before or during early adulthood.

In addition to goals, research has examined levels of perseverance among youth with physical disabilities, a construct also implicated in grit. In particular, Kang, Zhu, Ragan and Frogley (2007) examined 12 to 19 year old individuals with physical disabilities and their exercise perseverance; specifically, they were interested in examining obstacles to exercise and physical activities for participants. Participants had motor functioning loss at thoracic T7 or above, at T8 to lumbar L2, or L2 through sacrum SI and below. Participants were also included

if they had a similar disability or motor functioning loss (e.g., “amputees with bilateral hip disarticulation” and “total loss of motor functioning at or above T7”; p. 172).

Furthermore, Kang and colleagues (2007) showed that older individuals had more exercise perseverance than did younger individuals; however, there were no gender differences in exercise perseverance. Duckworth and Quinn (2009) also found no gender differences in levels of grittiness. Kang and colleagues’ (2007) finding that older individuals (e.g., aged 18 or older) with disabilities (e.g., 18 years old or older) have higher levels of perseverance than younger individuals (e.g., aged 13 years old and younger) may not be surprising given that in a sample of adults, Duckworth and colleagues (2007) have also reported that older individuals (e.g., aged 45 to 54 years old and aged 55 to 64 years old) in general tend to have higher levels of grit than do younger individuals (e.g., aged 25 to 34 years old and aged 35 to 44 years old). Although not one of the main hypotheses, my examination of the larger construct of grit among individuals with disabilities thus may be equally likely to show no significant gender differences, but to show significant differences for age (i.e., older versus younger individuals).

The limited research on constructs related to grit, such as perseverance, have all been examined in participants with very specific disabilities. Thus, I investigated if findings regarding constructs related to grit replicate using the overall construct of grit in a student sample that contains a wide variety of individuals with disabilities.

Grit across Different Life Domains

I am also proposing that levels of grit may differ among these different domains. Previous research (Nair & Wade, 2003) has shown that individuals with neurological disabilities place value or emphasis on goals related to different areas of their lives. Duckworth and colleagues (2007) illustrated the importance of goals in the concept of grit; however, unlike

Duckworth and colleagues' study, Nair and Wade (2003) illustrated the importance in examining individuals' goals in various life domains. Specifically, Nair and Wade (2003) report that individuals place the most emphasis on goals related to their "family, personal care, residential and domestic arrangements and relationship with [their] partner," intermediate emphasis on "goals related to leisure, financial status and friends and social contacts," and the least emphasis on the areas of "religion or life philosophy and work" (Nair & Wade, 2003, p.525).

Additionally, it appears as though differences in goal emphasis among different life domains is not only limited to individuals with neurological disabilities. Popivker, Wang, and Boerner (2010) examined 216 individuals with visual impairments, aged 40 to 64; they report that these individuals place the most emphasis on functional and social goals and less importance on psychological goals. Moreover, they also report that the individuals in this sample differ from previous research examining individuals without visual impairments, as the visual impairment shapes some of these individuals' goals. However, it still remains unknown whether grit as a whole will differ across these life domains for individuals with *various* disabilities, as opposed to solely for those with visual and neurological disabilities. Because there is limited research on constructs implicated in grit examined across multiple life domains (e.g., goals, perseverance), I therefore conducted an exploratory study of grit across multiple life domains. I utilized the life domains proposed by Popivker, Wang, and Boerner (2010). These domains include the functional domain, social domain, and psychological domain. The functional domain includes task-oriented goals, "such as reading, walking outdoors, working and being independent" (p. 1131). The social domain includes "maintaining social relationships" (p. 1131), and the psychological domain includes activities and tasks related to "maintaining or enhancing life quality and coping" (p.1131). I utilized these domains as they have been examined in a construct

implicated in grit: goals. Furthermore, an examination of grit across these domains also follows important guidelines of research regarding not simplifying individuals' experiences (e.g., Aspinwall & Tedeschi, 2001).

In sum, my first goal is to examine grit among individuals with various disabilities in order to determine if the construct applies in the same manner as it does among individuals without disabilities, particularly since goals and perseverance have been found to differ between these populations (e.g., Nair & Wade, 2003; Popivker et al., 2010). In addition, based on the aforementioned literature review, I explore if levels of grittiness in individuals with various disabilities will also differ across life domains. While I hypothesize that grit will vary across life domains based on the evidence presented that shows that constructs implicated in grit (i.e., goals, perseverance) vary across life domains, at the same time, given that many other constructs are also implicated in grit, contrary to this hypothesis, my findings instead may show that grit does not vary across life domains as a result of the influence of other constructs implicated in grit.

Methods

Participants

I recruited individuals with all different types of disabilities to see if previous findings (i.e., Kang et al., 2007; Nair & Wade, 2003; Popivker et al., 2010) among individuals with specific disabilities (i.e., spinal cord injuries; neurological disabilities; visual impairments, respectively) for constructs related to grit (i.e., goals, perseverance) replicate in the student sample that is available to me. Participants were 84 students, 31.1% male and 82.1% female, and 4.8% identified as neither male or female. Participants' ages ranged from 18 to 55, with 55.6% of participants being 18 to 24 years old. Participants primarily identified as European American, 88.1%. Additionally, 83.3% of participants reported the having the onset of their

disability occur before starting university. Participants had a range of disabilities, 1 blood and the immune system, 5 endocrine system, 3 eye and blindness, 4 gastrointestinal system, 19 musculoskeletal system, 13 nervous system, 26 psychiatric conditions, 3 respiratory system, 1 urinary tract and renal conditions, and 9 did not know the classification of their disability.

Furthermore, as no previous studies have examined grit or related constructs in individuals with various disabilities, all analyses were exploratory.

Participants were undergraduate and graduate students with any type of disability. An a priori power analysis was conducted to determine the number of participants required; based on the power analysis, the aim was to collect data from approximately 35 male participants and 35 female participants; unfortunately, data from only 11 males and 69 females was collected.

Participants were current students at Ball State University. Participants were excluded if they: (a) are less than 18 years of age, (b) do not currently have a documentable disability on file with the university, or, (c) have no disabilities.

Procedures

Participants were recruited through Ball State University's Disability Services. The Director of Disability Services sent all students registered with Disability Services a recruitment e-mail. The e-mail briefly described the purpose of the study (i.e., to better understand the disability experience). Students were e-mailed in the "bcc" line, and the email will state that participation is completely voluntary. I never had access to the email list; only the Director of Disability Services, who was not be on the research team, had access to the list. Additionally, because individuals with disabilities and chronic illnesses are a vulnerable population, all data gathered from participants was completely anonymous. Ball State University's Institutional Review Board first approved all procedures before any data was collected.

Participants completed the surveys anywhere they had access to the internet. Before starting the surveys, participants read a brief description of the study, and they gave their informed consent by clicking “I agree”. Participants were told the purpose of the study was to examine various aspects of their disability or chronic illness. Students did not enter in any identifiable information while completing the surveys. The informed consent page also listed the exclusionary criteria previously mentioned.

After completing the informed consent page, participants completed the survey. All measures (listed below) were randomized to control for any order effects. Lastly, they responded to demographic items. Once they completed the survey, all participants were debriefed on the last screen.

Measures

Grit. Duckworth and Quinn (2009) developed a shortened form of the grit scale measure. This measure assesses individuals’ stamina and capacity to sustain effort when working towards projects and goals of personal interest. The scale is an eight-item measure, with two subscales: the consistency of interest subscale and the perseverance of effort subscale. Duckworth and Quinn (2009) demonstrated acceptable internal consistency for the scale across four different samples (Cronbach’s $\alpha = .73$ to $.79$; Nunnally, 1978). The scales also demonstrated acceptable internal consistency across the four different samples (Cronbach’s $\alpha = .60$ to $.79$). In the present study, the grit measure also demonstrated acceptable internal consistency across participants’ career, health, and independence (Cronbach’s $\alpha = .79$), life quality, adjustment, and ability to cope to their disability (Cronbach’s $\alpha = .83$), and family, social, and partner relationships (Cronbach’s $\alpha = .79$).

The Grit Scale includes such items as, “Setbacks don’t discourage me,” and, “I often set a goal but later choose to pursue a different one.” Duckworth and Quinn (2009) asked participants to rate statements in response to how they think they compare to most individuals in the world. I slightly modified the wording of the directions to state that individuals should think of how they compare to most individuals in the world with disabilities (see Appendix A). The measure asks participants to rate response choices on a 5-point Likert scale (i.e., 1 = not like me at all; 2 = not much like me; 3 = somewhat like me; 4 = mostly like me; 5 = very much like me). Some items are reversed scored.

The scale was further modified to examine the three life domains examined by Popivker and colleagues (2010) in individuals’ with visual impairments and goals. These life domains are the functional, social, and psychological domains. In order to examine these three life domains in terms of individuals’ grit, the directions of the shortened grit scale were slightly modified (see Appendix A). For example, to measure the functional domain, the directions state, “When thinking of your career, daily tasks, health, and independence, to what extent do these statements apply to you? For the most accurate score, when responding, think of how you compare to most people with disabilities --not just the people with disabilities you know well, but most people with disabilities in the world. There are no right or wrong answers, so just answer honestly!”

Demographics. Participants provided information on 11 items regarding demographic information, in multiple-choice and open answer format. The demographic measures included information on age, ethnicity, gender, type of disability, years since diagnosis of the disability, disclosure, and severity of disability. The information for the various demographics can be found above in the participants section.

The onset of the participants' disabilities was also recorded. As stated previously, Popivker and colleagues (2010) defined onset as either occurring in participants' current stage of life or before the current stage of life; specifically defining onset as either before or during midlife. I adapted Popivker and colleagues definition to the present study's population. Participants were grouped into either having onset before or during early adulthood. Participants completed the demographics measure last (See Appendix B).

Results

For all following analyses, I set alpha levels at .05. Additionally, I reported partial eta-squared effect sizes (η^2) for all tests utilizing analysis of variance (ANOVA), in accordance with Cohen's (1988) recommendations. In my thesis, I follow Cohen's (1988) guidelines of how to interpret effect sizes. Cohen (1988) reports the following interpretations: small = .02, medium = .13, and large = .26 for η^2 .

Grit across Different Life Domains. In order to examine my hypothesis that grit levels differ across life domains in particular ways among individuals with disabilities, I conducted a within-subjects ANOVA on the average grit scores across the three life domains (i.e., functional, social, and psychological). The overall ANOVA was not statistically significant, $F(2) = .461$, $p > .05$, $\eta^2 = 0.007$. In other words, contrary to my hypothesis, there is no statistically significant difference between the three domains on grit levels (See Figure 1). Thus, no post hoc tests were performed.

Grit and Gender. In order to determine whether grit levels differ across genders, I conducted a 2 (gender) by 3 (domain) mixed-design ANOVA on grit levels. In-line with my hypothesis, there is no main effect of gender on grit, $F(1,68) = .014$, $p > .05$, $\eta^2 = 0.01$, nor did gender interact with domain, $F(1,68) = .074$, $p > .05$, $\eta^2 = 0.01$ (See Figure 2).

Grit and the Onset of the Disability. I conducted a 2 (age of onset: before vs. during college) by 3 (domain) mixed-design ANOVA to examine if grit levels differ across life domains based on age of onset. Contrary to my hypothesis, results reveal no significant main effects, $F(1,68) = .449, p > .05, \eta^2 = 0.007$ or interactions, $F(1,68) = .210, p > .05, \eta^2 = 0.003$ (See Figure 3).

Grit and Age. Once again I followed previous studies that used age as a median split variable with two levels (i.e., Duckworth et al., 2007; Kang et al., 2007), in order to examine if grit levels differ across two different age groups, I conducted a 2 (age: 18 to 22 year olds and 23 to 55 year olds) by 3 (domain) mixed-design ANOVA on grit levels. I found no significant main effects, $F(1,68) = 0.014, p > .05, \eta^2 = 0.0001$ or interactions, $F(1,68) = 0.024, p > .05, \eta^2 = 0.0001$ (See Figure 4.)

Discussion

The present study provided the first examination of grit among individuals with disabilities. Given the relevance of the construct of grit specifically to individuals with disabilities, and the consequences that it may have for positive adjustment in individuals with disabilities, my thesis aimed to contribute useful information to several different research and practice areas in the field of rehabilitation psychology. At the same time, in the scope of this examination, I did not compare levels of grit between individuals with and without disabilities. Since goals and perseverance have been shown to differ between individuals with and without *specific* disabilities (Popivker et al., 2010), in future research, it may be important to expand on the present study by examining grit levels across domains both in individuals with various disabilities and in individuals without disabilities.

Additionally, this thesis provided the first examination of grit across different life domains, either in individuals with various disabilities or in those without disabilities. Findings from the present study thus may have important implications for goal setting and perseverance in different life domains.

While the results from the present study were not in-line with my expectations, at the same time, there were several factors that may or may not have contributed to these findings. First, although I originally had planned to recruit 70 participants, in fact, in my sample, I was not able to collect enough males or enough individuals with an onset of their disability that started after their entrance into the university. Thus, for many of the variables, it did not fully make sense to test my hypotheses or make inferences about the results. Further, descriptive statistics indicated that the age variable was statistically skewed, and while there were no outliers, there was a string of individuals older than the average college age-group. Additionally, the participants had various disabilities, which may have further complicated results by introducing significant variance in grit scores, thus reducing the likelihood of statistical differences among the various life domains. At the same time, I did run follow-up analyses that only included the majority of individuals (i.e., females, individuals with an onset of their disability starting prior to their entrance into the university, and participants aged 18 to 22), and still found no significant results.

Although I did not find what I expected, these results are still important because they tell us something about grit; as Duckworth and colleagues (2007) have stated, grit does appear to be a stable personality characteristic, as supported in the present study by levels of grit not differing across domains, age groups, time of onset of individuals' disabilities, or gender.

Overall, this study contributes significantly to the literature in that researchers have never examined grit across life domains or in individuals with disabilities. Additionally, the present study support Duckworth and colleagues (2007) assertion that grit is in fact a stable characteristic, as grit did not differ among various life domains in the present study. These findings may have implications for individuals' adjustment and adaptation processes, given the focus on challenges and adversity in grit and significant challenges and adversity that individuals with disabilities may face.

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Appendix A
Grit Scale

*Directions for taking the Grit Scale: **When thinking of your career, daily tasks, health, and independence**¹, to what extent do these statements apply to you? For the most accurate score, when responding, think of how you compare to most people -- not just the people that you know well, but most people in the world. There are no right or wrong answers, so just answer honestly!*

Response Options

1 = not like me at all 2 = not much like me 3 = somewhat like me
4 = mostly like me 5 = very much like me

1. New ideas and projects sometimes distract me from previous ones.*
2. Setbacks don't discourage me.
3. I have been obsessed with a certain idea or project for a short time but later lost interest.*
4. I am a hard worker.
5. I often set a goal but later choose to pursue a different one.*
6. I have difficulty maintaining my focus on projects that take more than a few months to complete.*
7. I finish whatever I begin.
8. I am diligent.

Scored by computing the average for each participant. High scores indicate high grittiness.

**Reverse-coded.*

¹The underlined and bolded words will be changed to the following for the other domains:

When thinking of your family, social, and partner relationships

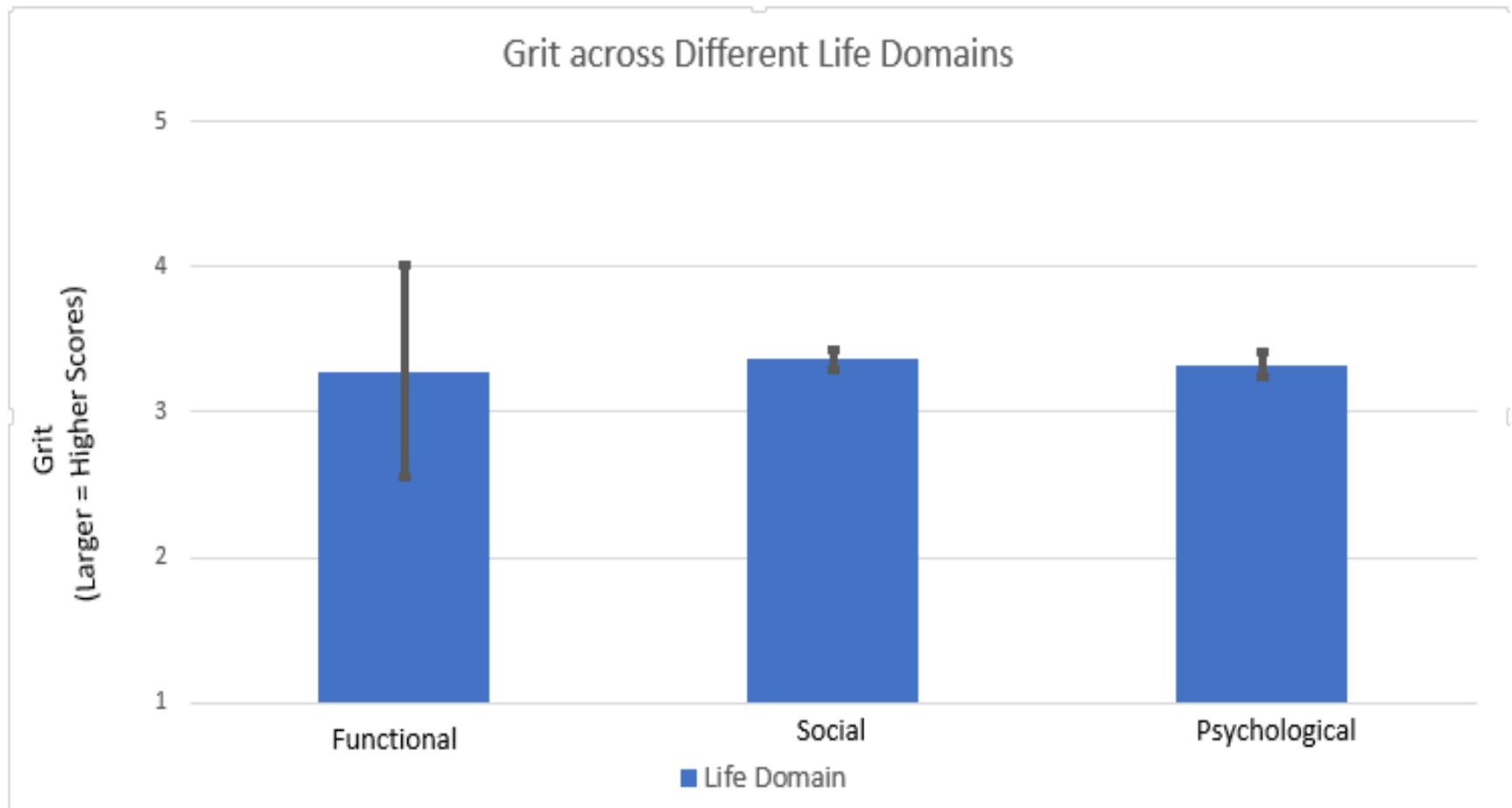
When thinking of your life quality, adjustment to disability, and coping,

Appendix B

Demographic Questionnaire

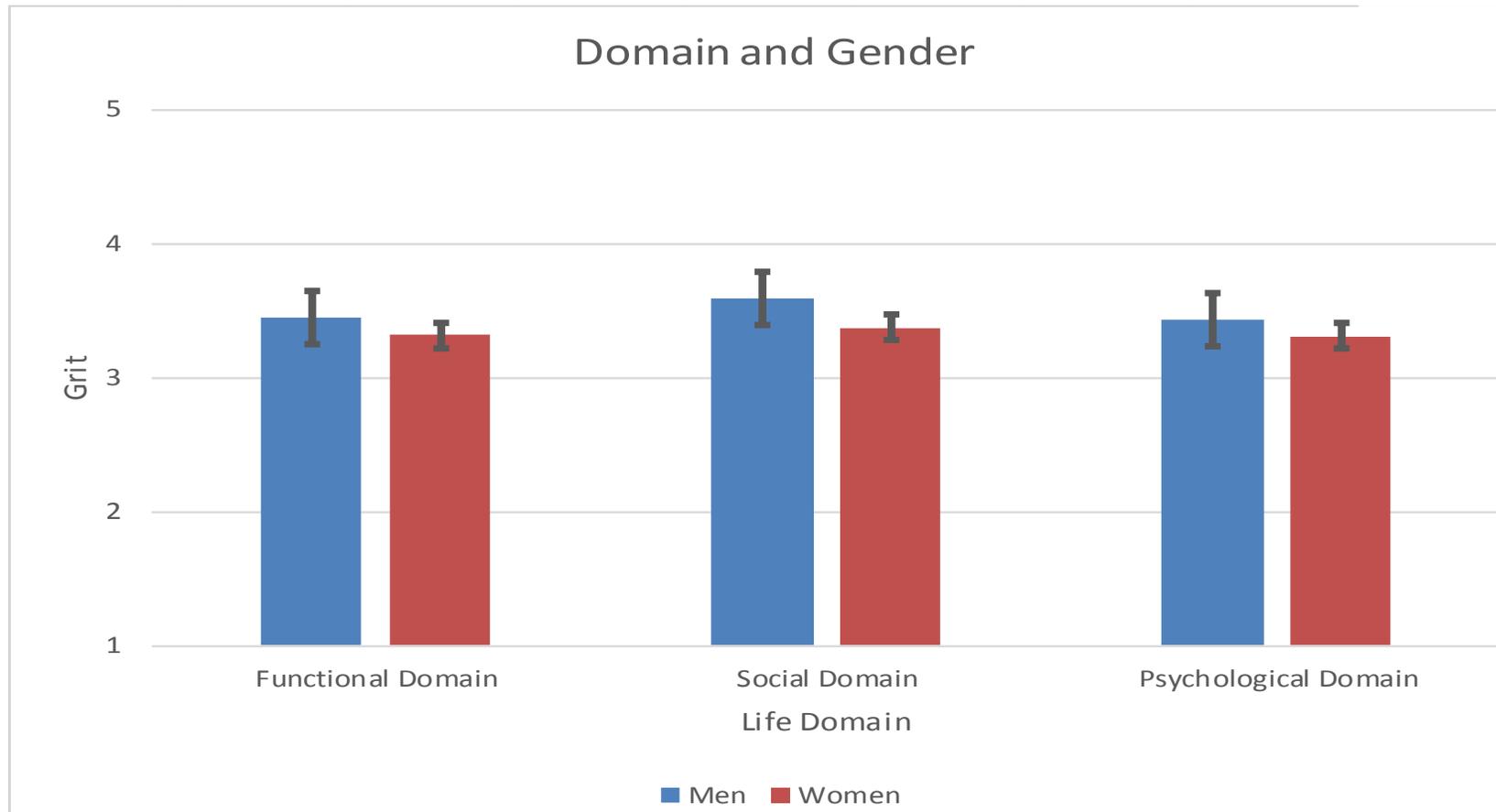
1. Age:
2. Gender: ____ Male ____ Female ____ Transgendered ____ Other
3. Race or ethnic group (e.g., European American, African American, Asian American):
4. What do you identify as your disability(ies) or chronic illness(es)? _____
5. When did the onset of your disability occur?
 - a. Before starting university
 - b. After starting university
6. My disability is mainly associated with the
 - a. Cardiovascular System (e.g, Coronary Artery Disease, Congestive Heart Failure)
 - b. Blood & the Immune System (e.g., Anemia, Leukemia, Sickle Cell Disease, HIV)
 - c. Cancer
 - d. Endocrine System (e.g., Diabetes, Addison's Disease, Hypothyroidism)
 - e. Eye and Blindness
 - f. Gastrointestinal System (e.g., conditions of the mouth, esophagus, stomach)
 - g. Hearing loss & Deafness
 - h. Musculoskeletal system (e.g., Degenerative Conditions, Lupus, Rheumatoid Arthritis)
 - i. Nervous System (e.g., Cerebral Palsy, Epilepsy, Multiple Sclerosis, Traumatic Brain Injury)
 - j. Psychiatric conditions (e.g., Depression, Schizophrenia, Anxiety)
 - k. Respiratory System (Asthma, Cystic Fibrosis, Lung diseases)
 - l. Skin Conditions & Burns (e.g, Psoriasis, Allergic Reactions, Infections)
 - m. Urinary Tract & Renal Condition (e.g., Renal failure, Kidney Disease)
 - n. I don't know
7. I have had my disability or chronic illness since birth.
 - a. Yes
 - b. No
8. I use assistive technology.
 - a. Yes
 - b. No
9. How difficult was it for you to complete this questionnaire?
 - a. Easy
 - b. Somewhat Difficult
 - c. Difficult
 - d. Extremely Difficult

Figure 1



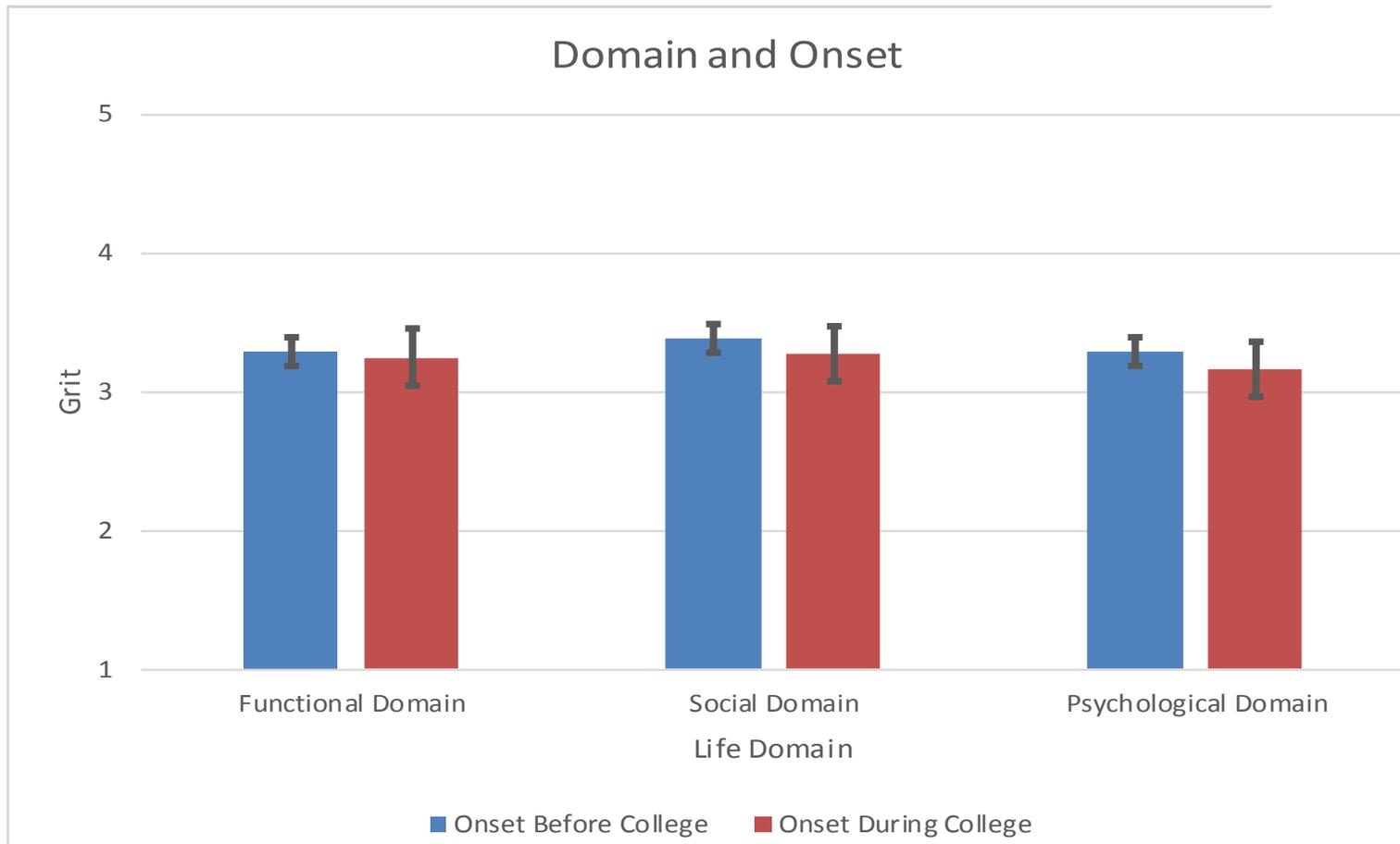
Results of repeated-measures ANOVA on grit levels, across the three life domains.

Figure 2



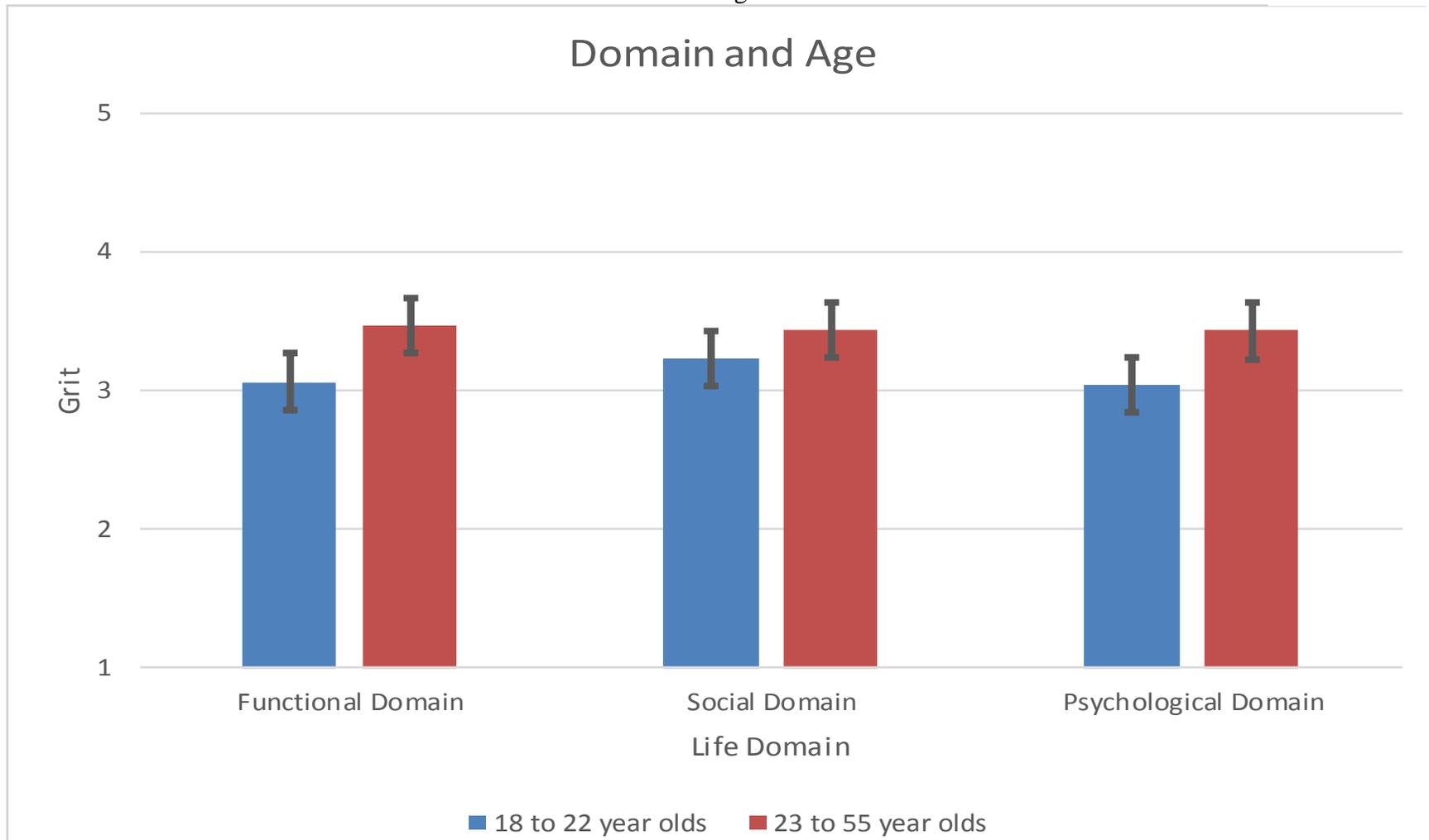
Results of gender by domain mixed-design ANOVA on grit levels.

Figure 3



Results of onset by domain mixed-design ANOVA on grit levels.

Figure 4



Results of age by domain mixed-design ANOVA on grit levels.